

DESCRIPTION

OF A

DISLOCATION OF THE HEAD

OF

THE FEMUR,

COMPLICATED WITH ITS FRACTURE;

WITH REMARKS.

BY

JOHN BIRKETT, F.R.C.S.,

SURGEON TO GUY'S HOSPITAL.


*[From Volume LII of the 'Medico-Chirurgical Transactions,' published  
by the Royal Medical and Chirurgical Society of London.]*

LONDON:

PRINTED BY

J. E. ADLARD, BARTHOLOMEW CLOSE.

1869.



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Received Jan. 12th.—Read Feb. 23rd, 1869.

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A WOMAN, æt. 35, of rather short stature, was brought into Guy's Hospital on account of the following injuries, the infliction of which she survived a few minutes only. The skull was broken, and the brain lacerated.

She had fallen from a second-floor window of a house on to the pavement, the height of which, from the ground, was from twenty to twenty-five feet.

After death it was observed that the left leg was slightly shorter than the right, and the whole limb inverted; the left great toe rested on the inside of the dorsum of the right foot, and there was considerable fulness in the left gluteal region. On rotation of the left leg slight crepitus could be felt in the region of the hip-joint.

When the gluteus maximus muscle was reflected the head of the bone was seen lying upon the posterior border of the

acetabulum, between it and the great sacro-sciatic notch, about one inch from the base of the spine of the ischium, above and anterior to it. At its upper border was the pyramiformis muscle, at its lower the obturator internus, with the gemelli. There was the slightest laceration of the muscular fibres of the pyramiformis. The cartilage-covered head of the femur was uncovered by its capsular ligament, a small piece of which lay torn upon it. At the edge of the fracture a few fibres of the ligamentum teres remained attached to the usual depression on its surface.

On further examination it was discovered that a portion

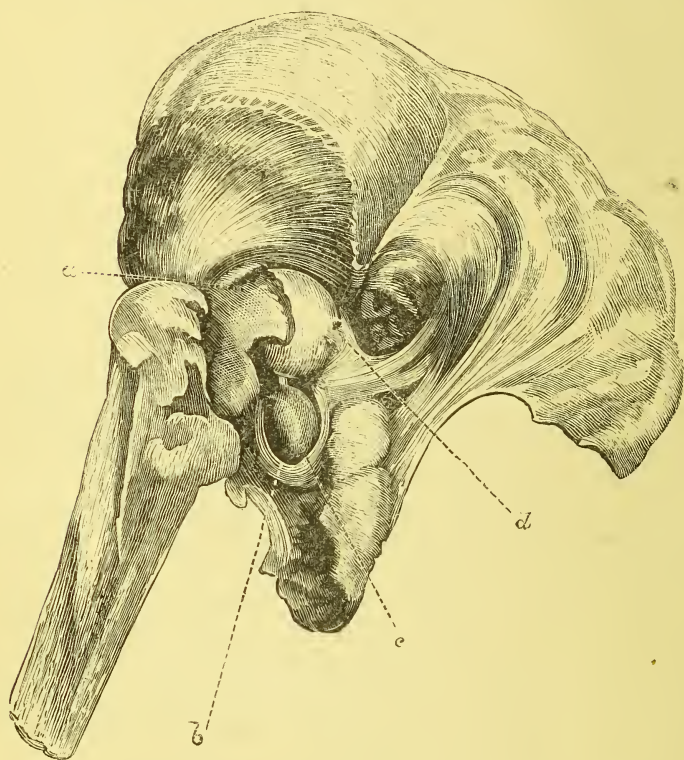


FIG. 1.—*a*. Part of capsular ligament. *b*. Cotyloid ligament. *c*. Fragment of head of femur in the acetabulum. *d*. A few fibres of the ligamentum teres.

of the head of the femur had been broken off. This fragment, to which the greater part of the ligamentum teres was still attached, remained in the acetabulum.

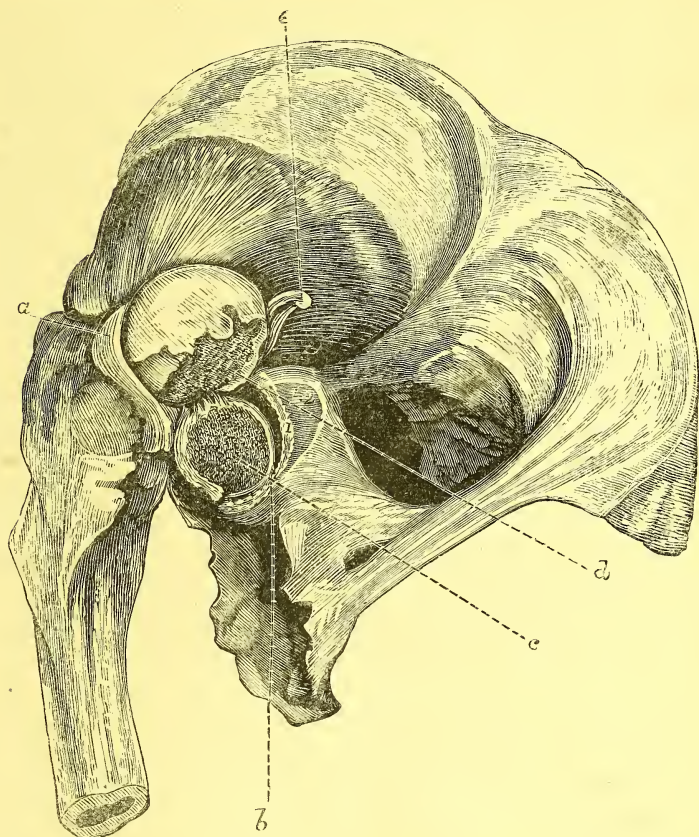


FIG. 2.—*a*. Capsular ligament. *b*. Acetabulum, its bare edge (1) exposed, and the bare surface (2) of os innominatum. *c*. Fragment of head of femur. *d*. Cancellous tissue of the head of the femur. *e*. Cotyloid ligament torn off from edge of acetabulum (1).

The fracture was remarkably even, and on a plane with the vertical axis of the shaft of the femur.

The flat face of the greater segment lay upon the posterior surface of the os innominatum, just above the posterior edge of the acetabulum, being prevented from ascending higher



by its attachment to the smaller segment, which was held in the cavity by the ligamentum teres. The cartilage forming a hinge between the segments was in contact with the posterior rim of the acetabulum.

The cotyloid ligament was detached from the posterior brim of the acetabulum. A portion of it, an inch long, hung from its superior border. The periosteum was stripped off the bone forming that portion of the outside of the acetabulum against which the broken surface of the head of the femur lay in close contact.

The rent in the capsular ligament was confined to its posterior surface. It was about two inches in length. The site of the rupture was at the iliac attachment for the upper part of the acetabulum and along its posterior edge; it then extended midway beneath the iliac and femoral attachments beneath the cervix, and ended at the lower part of the anterior surface. With this exception the anterior capsular ligament was unhurt.

The shape of the bone was normal and its tissue quite healthy.

After replacing the head of the femur in the acetabulum, the line of fracture could be made to correspond with the posterior edge of that cup, when the shaft was flexed upon the pelvis to a right angle and slightly adducted.

*Remarks.*—The dislocation of the head of the femur now described belonged to that class termed by surgeons backwards and upwards, or on to the dorsum ilii, although it was prevented ascending as high as usual on account of its peculiar feature. That feature, fracture of the head, the rarity of which will, I presume, be admitted, is the distinguishing characteristic of the injury. It is to record this fact that I have ventured to relate the case to the Society.

Authorities upon the subject of dislocations of the joints do not even allude to this complication.

M. Malgaigne states—"The luxations of the femur are but little complicated with fractures, either of the pelvic bones, the femur itself, or more distant bones."

("Les luxations du fémur ne sont guère compliquées que de fractures, soit des os du bassin, soit du fémur même, soit d'autres os plus éloignés."<sup>1</sup>)

Having failed to find a parallel case in the book of Mr. Robert W. Smith, of Dublin, I wrote to that gentleman, who did me the favour to reply as follows:—"Although tolerably familiar with the literature of fractures and luxations, I am not aware of any similar injury having been placed on record as happening to the head of the femur."

We have then, probably, under observation an injury hitherto undescribed.

The mode in which the head of the femur was broken is worthy investigation. It may have happened in two ways. Either the head of the bone was split by being forcibly driven against the strong edge of the acetabulum; or the strength of the ligamentum teres and its attachment was sufficient to overpower the cohesion of the bony tissue, whilst the femur was violently driven upwards and backwards.

Perhaps both influences may have exerted combined action in the production of the injury.

As displayed in the woodcut, Fig. 1, the close adaptation of the broken surface of the head of the femur to the brim of the acetabulum, and the neat way in which the latter fits in between the fragments, would seem to favour the first explanation. On the other hand, as nearly the whole of the round ligament still keeps its hold upon the lesser fragment, it would appear that the bone tissue yielded to the traction exerted upon it, rather than the fibrous structures.

This view of the mechanism of the injury is taken by Mr. Smith. For with his letter to me he was so good as to send a drawing of an injury to the articular head of the tibia, of which he thus writes:—"I enclose a drawing of a lesion of the head of the tibia which I look upon as being quite analogous. They are both, in my opinion, examples of a class of injuries to which sufficient attention has not

<sup>1</sup> 'Traité des fractures et des luxations.' Paris, 1855, t. ii, p. 881.

hitherto been devoted; they are difficult of diagnosis and destructive in their results. I allude to the violent tearing off of portions of the articular surfaces of bones by the traction of powerful ligaments."

Lastly, the chief fact in this lesion may serve to explain some of the difficulties experienced in keeping the head of the femur in the acetabulum after its reduction. Most surgeons must have seen such cases, though fortunately they are rare. In them "crepitus" is usually an attendant circumstance, which is attributed to a fracture of the brim of the acetabulum, but the injury may have been of the kind above described.

To conclude, I have to thank Mr. Davies-Colley, the registrar at Guy's Hospital, for dissecting the preparation and describing it, as well as Mr. G. Turner, a student, for executing the sketches, of which the woodcuts are copies.

The preparation is in the museum at Guy's Hospital.